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09/742,801	12/20/2000	Christopher C. Ott	062891.0499	7278

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EXAMINER

SEDIGHIAN, REZA

ART UNIT PAPER NUMBER

2633

DATE MAILED: 05/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/742,801

Applicant(s)

OTT, CHRISTOPHER C.

Examiner

M. R. Sedighian

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 December 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 and 13-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 and 13-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

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1. This communication is responsive to applicant's 12/17/04 amendments and remarks in the application of OTT filed in 12/20/2000. The amendments have been entered. Claims 1-11 and 13-24 are now pending.

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 9-11, 13-14, and 23-24 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 9, it is not clear which module is the optical interface module? Which interface is the optical line interface? and which card is the optical interface card. Figure 1 shows connectors 24 for connecting optical interface modules 20 to a conversion module 18, not to an optical interface card 12.

As to claim 24, it recites the limitation "the optical interface modules" in line 5. There is insufficient antecedent basis for this limitation in the claim.

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1, 6-8, 15, and 20-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Follett et al. (US Patent No: 4,870,637) in view of Carlson et al. (US patent No: 5,572,348).

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Regarding claims 1 and 15, Follett teaches an optical line interface assembly (11₁, 11₂, 11_N, fig. 1) for insertion in a slot of a communication rack (10, fig. 1), comprising: a board (11_i, fig. 2) having a plurality of connectors (14_i, fig. 2) each formed to couple to an optical interface module (interface logic 21, fig. 2), the board further having a network interface (22, fig. 2) that is coupled to a backplane of the communication rack (col. 2, lines 62-67, col. 4, lines 61-65) and a conversion module (23₁, 24₁, fig. 2) linking the connectors (14_i, fig. 2) and the network interface (22, fig. 2) and operable to convert signals between an optical protocol and electrical protocol (col. 3, lines 30-57); and a plurality of optical interface modules (23₂, 24₂, fig. 2) each having one optical line interface (14_i, fig. 2) operable to couple to an optical signal line (37₂, 37_K, 38₁, 38₂, fig. 2). Follett differs from the claimed invention in that Follett does not specifically teach the optical interface modules are removably coupled to the connectors to permit replacement of a selected one of the optical interface modules. Carlson teaches a universal demarcation point (10, fig. 1) with a plurality of optical modules (22a, 22c, fig. 1 and col. 6, lines 6-10, 20-25) that are removably (col. 4, lines 15-22) connected to connectors (20, fig. 1) on a board (16, fig. 1).

Therefore, it would have been obvious to an artisan at the time of invention to provide connectors or means for the selective removal of optical interface modules of Follett from the backplane, as such connections are taught by Carlson, to easily replace and exchange the optical interface modules of Follett in case of damage or circuit failures. Regarding claim 15, as to determining if a selected one of the optical interface modules has failed and removing the selected module, it is obvious that when such modules does not properly operates or malfunctions, such modules may be failed and they can be removed or replaced. Furthermore, such limitations are merely depends on how the system is designed, structured, and used. When

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the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation. In re Swain et al., 33 CCPA (Patents) 1250, 156 F. 2d 239, 70 USPQ 412; Minnesota Mining and Mfg. Co. V. Coe, 69 App. D.C. 217, 99 F. 2d 986, 38 USPQ 213; Allen et al. V. Coe, 77 App. D.C. 324, 135 F. 2d 11, 57 USPQ 136.

Regarding claims 6 and 20, Follett teaches the optical interface modules (23₁, 23₂, 24₁, 24₂, fig. 2) convert between optical serial bit streams and electrical serial bit streams (col. 3, lines 42-54).

Regarding claims 7 and 21, as to a failure rate of the optical interface modules being at least ten times greater than a failure rate of the conversion module, such limitations are merely depends on how the system is designed, structured, and used. When the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation. In re Swain et al., 33 CCPA (Patents) 1250, 156 F. 2d 239, 70 USPQ 412; Minnesota Mining and Mfg. Co. V. Coe, 69 App. D.C. 217, 99 F. 2d 986, 38 USPQ 213; Allen et al. V. Coe, 77 App. D.C. 324, 135 F. 2d 11, 57 USPQ 136.

Regarding claims 8 and 22, Follett teaches the optical interface modules comprises two optical line interfaces (23₁ and 24₁, fig. 2) to provide full duplex communications (col. 3, lines 34-35).

6. Claims 9 and 13-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Follett et al. (US Patent No: 4,870,637) in view of Graves et al. (US patent No: 4,733,093).

Regarding claim 9, as it is understood in view of the above 112 problem, Follett teaches an optical interface module (11_i, fig. 2), comprising: one optical line interface (interface logic 21, fig. 2) for coupling to an optical line (37_i, 12_i, fig. 2); a connector (the electrical connector that connects module 22 to module 23₁ in fig. 2) for coupling an optical interface module (23_i, fig. 2) to an interface card (22, fig. 2); and an electrical/optical converter (23₁, fig. 2) operable to convert between optical signals communicated by the optical line interface and electrical signals communicated by the connector (col. 3, lines 42-57). Follett differs from the claimed invention in that Follett does not disclose the connector removably couples the optical interface module to the interface card. Graves teaches coupling of signals between circuit cards (col. 1, lines 5-9) that are removably electrically connected (col. 1, lines 10-15). Graves further teaches links and connectors between circuit cards and insertion and removal of connectors (col. 1, lines 38-55). As it is taught by Graves, it would have been obvious to a person of ordinary skill in the art at the time of invention to incorporate a removable connector to couple the optical interface module 23 to module 22, in the electro-optical data transmission module of Follett to provide an easy removal and exchange of the optical interface module. Furthermore, it is well known that optical or electrical interface modules such as electro-optical modules of Follett can be detachably connected to connectors for an easy removal or exchange of such modules.

Regarding claim 13, as to grooves corresponding to guides for the interface card, Follett teaches a plurality of modules (11₁, 11₂, 11_N, fig. 1) that are placed or inserted in parallel relationship on a backplane (10, fig. 1), and it is obvious that in such structure, there are a plurality of guides, each being operable to receive one of the optical interface modules 11, and each module should comprises of grooves corresponding to each guide to keep them in place.

Regarding claim 14, Graves further teaches the connector facilitates removal of an optical interface module (col. 1, lines 50-55).

7. Claims 2-3 and 16-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Follett et al. (US Patent No: 4,870,637) in view of Carlson et al. (US patent No: 5,572,348) and in further view of Block et al. (US patent No: 4,850,044).

Regarding claims 2-3 and 16-17, the modified electro-optical transmission module of Follett and Carlson differs from the claimed invention in that Follett and Carlson do not specifically disclose the board comprises a plurality of guides each operable to receive an inserted one of the optical interface modules. Follett discloses a plurality of modules (11₁, 11₂, 11_N, fig. 1) that are placed or inserted in parallel relationship on a backplane (10, fig. 1). It is obvious that in such structure, there are a plurality of guides, each being operable to receive one of the optical interface modules 11, and each module should comprise grooves corresponding to each guide. Furthermore, Block teaches a plurality of guides (12, fig. 1) that each is operable to receive an inserted one of optical interface modules (15, fig. 1). As it is taught by Block, it would have been obvious to provide guides and slots in the backplane of Follett to insert and place respective optical interface modules. As to claims 3 and 17, Block further teaches each of the guides comprises guide slots (col. 4, lines 60-68, col. 5, lines 1-6).

8. Claims 4 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Follett et al. (US Patent No: 4,870,637) in view of Carlson et al. (US patent No: 5,572,348) and in further view of Follingstad et al. (US Patent No: 6,345,986).

Regarding claims 4 and 18, as to connectors, Carlson teaches connectors (20, fig. 1) for connecting electro-optical modules (22a, 22c, fig. 1) to a board (16, fig. 1), as discussed above in claims 1 and 15. The modified electro-optical transmission module of Follett and Carlson further differs from the claimed invention in that Follett and Carlson do not disclose the connectors are nine-pin D-subminiature connectors. Follingstad teaches nine-pin D-subminiature connectors (col. 8, lines 26-30 and figs 13A-D). Therefore, it would have been obvious to a person of ordinary skill in the art at the time of invention to incorporate pin D-subminiature connectors such as the ones of Follingstad for the connectors in the modified opto-electric module of Follett and Carlson in order to provide connectors with durable design.

9. Claims 5 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Follett et al. (US Patent No: 4,870,637) in view of Carlson et al. (US patent No: 5,572,348) and in further view of Weir (US Patent No: 6,570,982).

Regarding claims 5 and 19, as to connectors, Carlson teaches connectors (20, fig. 1) for connecting electro-optical modules (22a, 22c, fig. 1) to a board (16, fig. 1), as discussed above in claims 1 and 15. The modified electro-optical transmission module of Follett and Carlson differs from the claimed invention in that Follett and Carlson do not disclose PCMCIA connectors. Weir teaches a printed circuit board with a mounted module and PCMCIA connectors (col. 6, lines 8-10). Therefore, it would have been obvious to a person of ordinary skill in the art at the time of invention to incorporate PCMCIA connectors such as the ones of Weir for the connectors in the modified opto-electric module of Follett and Carlson to benefit from the low cost standard components and to permit the communication with other components.

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10. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Follett et al. (US Patent No: 4,870,637) in view of Graves et al. (US patent No: 4,733,093) and in further view of Follingstad et al. (US Patent No: 6,345,986).

Regarding claim 10, the modified data transmission module of Follett and Graves teaches electrical connectors for connecting circuit cards (Graves, col. 1, lines 49-55). The modified data transmission module of Follett and Graves differs from the claimed invention in that Follett and Graves do not specifically disclose the connectors are nine-pin D-subminiature connectors. Follingstad teaches nine-pin D-subminiature connectors (col. 8, lines 26-30 and figs 13A-D). Therefore, it would have been obvious to a person of ordinary skill in the art at the time of invention to incorporate pin D-subminiature connectors such as the ones of Follingstad for connectors in the modified data transmission module of Follett and Graves in order to provide connectors with durable design.

11. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Follett et al. (US Patent No: 4,870,637) in view of Graves et al. (US patent No: 4,733,093) and in further view of Weir (US Patent No: 6,570,982).

Regarding claim 11, the modified data transmission module of Follett and Graves teaches electrical connectors for connecting circuit cards (Graves, col. 1, lines 49-55). The modified data transmission module of Follett and Graves differs from the claimed invention in that Follett and Graves do not disclose PCMCIA connectors. Weir teaches a printed circuit board with a mounted module and PCMCIA connectors (col. 6, lines 8-10). Therefore, it would have been obvious to a person of ordinary skill in the art at the time of invention to incorporate

PCMCIA connectors such as the ones of Weir for connectors in the modified Data transmission module of Follett and Graves in order to benefit from the low cost standard components and to permit the communication with other components.

12. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Follett et al. (US Patent No: 4,870,637) in view of Graves et al. (US patent No: 4,733,093) and in view of Block et al. (US Patent No: 5,069,522) and in further view of Ramsey et al. (US Patent No: 4,953,930).

Regarding claim 23, the modified data transmission module of Follett and Graves differs from the claimed invention in that Follett and Graves do not disclose the optical line interface receives optical signals that comprise a serial bit stream and a bit-clock, and the optical line interface converts the serial bit stream and the bit-clock to electrical signals and communicate the electrical signal via the connector to a framing device on the interface card for conversion into ATM cells. Block teaches an optical interface module (425, fig. 4) that receives optical signals comprising of serial bit stream and a bit-clock (col. 6, lines 25-35), wherein the optical interface module (425, fig. 4) converts the serial bit stream and the bit-clock into electrical signals (col. 6, lines 25-35) and communicates the electrical signals via a connector to a framing device (428, fig. 4) on a interface card (101, fig. 1 and col. 7, lines 45-46). Therefore, it would have been obvious to a person of ordinary skill in the art at the time of invention to incorporate an opto-electric conversion module such as the one of Block for the conversion module in the optical interface of Follett in order to receive optical signal and convert the received parallel optical signal into electrical signals and to further serialize the received data signals. The modified optical interface module of Follett, Graves, and Block further differs from

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the claimed invention in that Follett, Graves, and Block do not disclose conversion of electrical signals into an asynchronous transfer mode (ATM) cells. Ramsey teaches a serial to parallel converter module (24, fig. 7) that provides a plurality of conventional communication interface functions, such as processing of asynchronous data for further use (col. 16, lines 25-30).

Therefore, it would have been obvious to an artisan at the time of invention to incorporate a deserializer such as the one of Ramsey for the deserializer in the modified optical interface module of Follett, Graves, and Block in order to provide conversion of data into an ATM mode to transmit a wide range of data types.

13. Claim 24 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.

14. Applicant's arguments with respect to claims 9-1 and 13-14 have been considered but are moot in view of the new ground(s) of rejection. Applicant's arguments filed 12/17/04 with respects to claims 1 and 15 have been fully considered but they are not persuasive. As to claims 1 and 15, remark states Follett-Carlson combination fails to teach or suggest an optical line interface assembly for insertion in a slot of a communication rack, wherein the assembly includes both a board having a "conversion module operable to convert signals between an optical protocol and an electrical protocol" and "optical interface modules removably coupled to connector" on the board. Follett teaches an optical line interface assembly 11_i that is comprised of an optical interface module 21 that is connected with connectors to a multi-fiber connector 14_i, wherein interface module 21 includes transmit and receive modules 23_i and 24_i which convert electrical signals to optical signal, or vise-versa (Follett, col. 3, lines 30-55).

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Accordingly, Follett clearly teaches electro-optical conversion modules 23_i and 24_i that are placed on an optical interface module 21 that is connected with connectors to fiber connector 14_i. As to the optical interface module being removably coupled to connectors to permit replacement of a selected one of the optical interface modules, Carlson teaches an optical conversion module 22a, which functions the same as the conversion module 24_i of Fallott, and that can be easily removed from connectors 20 of a motherboard 16 (Carlson, col. 4, lines 16-22). As it is taught by Carlson, it is obvious that conversion modules 23_i and 24_i of Follett can be connected to respective connectors such as the ones of Carlson to easily remove such modules in cases of failure or malfunctions. Furthermore, it is well known that optical or electrical interface modules such as electro-optical modules of Follett can be detachably connected to connectors for an easy removal or exchange of such modules. Remark states examiner has not provided any evidence, suggestions, or motivation to combine or modify the references. However, it is well known that electrical or optical modules, or interfaces can be removably connected to connectors to further provide an easy removal or exchange of such modules, or interfaces from backplanes or circuit cards for reasons of repair or exchange. As to converting signals between an optical protocol and electrical protocol, claims 1 and 15 broadly recites such limitations and any specific protocol is not recited, therefore, such limitation are broadly interpreted as conversion between optical and electrical signals. Applicant's attention is directed that during the prosecution of a pending patent application the terms found in the claims should be given the broadest reasonable interpretation, *See in re Pearson*, 181 USPQ 641 (CCPA 1974).

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15. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

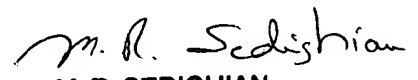
A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to M. R. Sedighian whose telephone number is (571) 272-3034. The examiner can normally be reached on M-F (from 9 AM to 5 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on (571) 272-3022. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


M. R. SEDIGHIAN
PRIMARY EXAMINER